GEOGRAPHIC SCHOOL BULLETINS

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A smile comes easily to this costumed Portuguese girl, as it does to all her lighthearted countrymen. Prospectors are scouting for uranium in an area not far from her native Douro Valley.

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SEE PAGE 189 . . .

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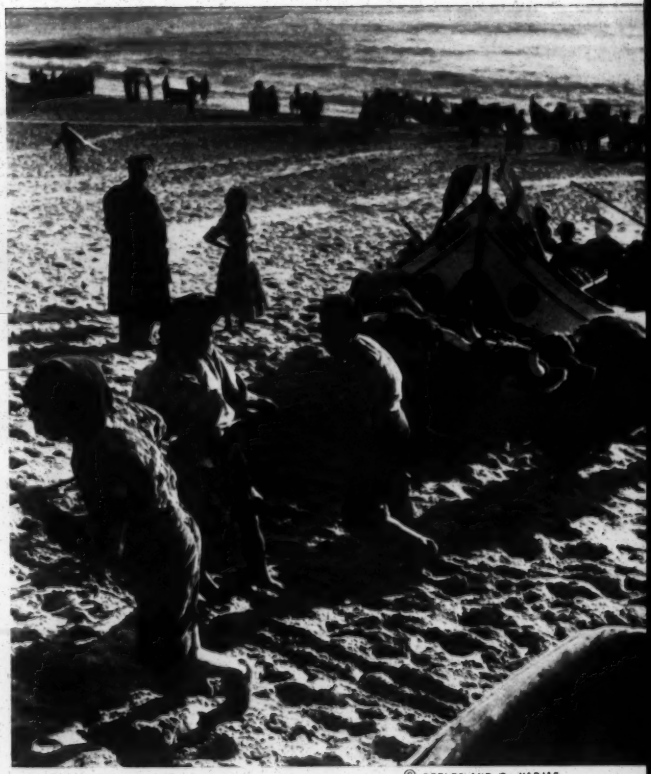
for 40,000 Portuguese fishermen. Their boats ply the waters from Moledo, in the north, to Vila Real de Santo António, around the country's southerly hook, hauling in glittering cargoes of sardines and tunnies. Some fishermen hunt their prey with the latest electronic devices. But most fish as their forefathers did from high-prowed boats resembling ancient Phoenician galleys. Many vessels (right) have painted eyes to help find their way. Portuguese muscles drive long-bladed sweeps through Atlantic breakers; in stormy weather, inherited skill sometimes stands alone against disaster.



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At Moledo, men, women, and children rush into the pounding surf, scooping seaweed to fertilize provincial fields. Most wear white clothes Why? "Because we always have," they answer. For centuries Lisbon's fishwives have gone barefoot. Now the law has put them in shoes, which they still forsake when police aren't watching.

Forests as well as fish support Portugal's economy. The cork that you consider an everyday household material probably came from Portugal's cork oak forests. These trees sprawl on otherwise worthless southern hillsides, providing about 50 per cent of cork exports in international trade. Axmen strip off the bark about

SALT FROM THE SEA cakes these evaporation pans. Stirring aids the sun's work

HERMANO JOSE DOS REIS AMARO

CARLOS MACHADO, ALVAO

Atom Overtakes Portugal

THE Atomic Age casts a glow of promise on the purple-brown mountains of northern Portugal. Not far from these terraced hills of the Douro Valley may hide the largest deposits of uranium west of the Iron Curtain. Some 300 prospectors, ranging through the area by plane, jeep, and on foot, nourish high hopes. A sizable strike would mean future atomic power for industry in a power-poor country. Living standards would rise. National prestige would grow.

All Portugal awaits the verdict, expectantly. But meanwhile, life goes on. With amiable shrugs and the flash of brown eyes, Portuguese make the most of fishing, farming, the mellowing of fine wines, and the joy of dances contrived when Europe was young.

Sandwiched between Spain and the Atlantic, oblong-shaped Portugal, slightly larger than Maine, is humped with mountains towering over 4,000 feet in the north. Grapes thrive in their flaky soil. Vineyards grow on steplike terraces, above. Generations built the terrace walls, manhandling granite blocks up the slopes. Farther south the ranges decline to hills. Stretches of golden sand carpet the coast. Rich delta lands work a pattern on it.

The ocean resounds in Portugal's past. Vasco da Gama discovered the sea route to India. Portuguese sailors piled up possessions—Macau, Timor, Goa, Cape Verde Islands, Portuguese Guinea, Príncipe and São Tomé in the Gulf of Guinea, the Azores, the Madeiras, others. Salt water still means a livelihood

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I LIVE IN ASWAN . . .

FROM HANS SCHAFFNER

MY name is Hans Schaffner. I'm a Swiss boy, 14 years old, and for seven of those years I've lived with my missionary parents in Aswan, Egypt. I'm writing you to tell the readers of the *Geographic School Bulletins* what my African home is like.

Maybe you think of Aswan just as the place where a huge dam stores up the waters of the Nile for irrigation. To me it's home—a city of about 30,000 people, spread along the east bank of the river. My street runs along the shore and from our windows I can see Elephantine Island where the ancient Egyptians built a temple and where Roman troops guarded the southern limit of their empire. [Elephantine Island lies behind Nile fishermen in the picture below.]

The rooms in our house are big and airy to suit the hot, dry climate. In the summer, the temperature may reach 120 degrees and seldom goes below 90. So we do all we can to beat the heat. We always have ice water in the refrigerator and keep the house well ventilated. Even so, my room is too hot for sleep on summer nights. I sleep on the roof, instead.

I get up early. Maybe I explore the city. I pass cafés and restaurants and sometimes go shopping for canned foods in one of the three Greek grocery stores. I may stop at a stand and drink a Coca-Cola—as though I were an American.

But there are a good many differences. I can get ice cream here, but I wouldn't want to eat it because no one knows how clean it is. I can go to the movies, too. But if you were to visit me, you'd find American films at only one theater. And when I cross a street in Aswan, I not only have to watch out for cars, but I must dodge donkeys and camels.

When I walk through the Sug, the outdoor market, I meet Egyptians, Greeks, Berbers, Sudanese, Bedouins—busily shopping or selling fruits and vegetables, shoes or cloth. I stop to look at stands and shops that line this dirt street. If I buy fruit, I must remember to wash it before I eat it.

After lunch I take a nap until midafternoon—another way to escape the heat. I have jobs to do around the house—like irrigating the garden in our compound whenever it needs water.

Every day I listen for the rattle of the express from Cairo. In the winter, a plane brings passengers twice a week.

There are other small excitements—to live right next to ancient buildings and monuments and to wonder how they were built; to make friends with young people of half a dozen races or tribes.

NATIONAL GEOGRAPHIC PHOTOGRAPHER B. ANTHONY STEWART

every 11 years, leaving raw, pink trunks to contrast with green hillsides. Maritime pine covers nearly 3,000,000 acres, ranking Portugal second in production of resins and turpentine.

While uranium excites miners, they take wolframite, too, from the northeast. This is a source of tungsten (GSB, Oct. 15, 1956), highly prized in World War II. Lead mines lie at Coimbra, copper mines at San Domingo, and antimony reserves near Pôrto. Miners dig some coal. But mineral supplies lag behind demands. Imports fill the gap.

The fame of Portugal's wines traveled like her seafarers. Wine grapes thrive in the upland river valleys. Douro Valley vineyards provide the dark port wine named for Portugal's second city, Pôrto. Grapes of southern Portugal often wrinkle into raisins. They share the landscape with oranges, almonds, figs, tangerines, and lemons. Farming occupies about two thirds of Portugal's people. Along the coast they raise corn, rye, oats, flax, potatoes, and barley. Cattle graze in central uplands; sheep and swine are tended in the drier, warmer south.

However Portuguese work, folk music enlivens their days. They revel in dancing songs called *viras* and *chulas*. Guitars accompany the *fados*, musical expressions of sadness. The popular *cantiga* tells a story. People are proud of their traditional craftsmanship in tiles, laces, and pottery. Some of their brightly-adorned oxen yokes pass down in families as treasures.

Visitors look to Lisbon, the capital, for varied wonders. There the Tagus River widens to nine miles, with a granite range behind. Streets of the "new" Lisbon extend wide and straight, flanked by homes and stores.

"Old" Lisbon spins a web of crooked, cobbled lanes, right.

As a neutral listening post in World War II, Lisbon whispered untold secrets of intrigue behind its suave, centuries-old face. Today its ears listen for the click of Geiger counters, heralding an atomic future.—S.H.

ALMASY, THREE LIONS

National Geographic References: ***Map***—Western Europe (paper, 50¢; fabric, $1.00). ***Magazine***—November, 1954, "Golden Beaches of Portugal" (75¢); November, 1948, "Portugal Is Different" (75¢). ***School Bulletins***—April 30, 1956, "Portuguese Fishing Fleet" (10¢).

Dwellings, storehouses, and round ceremonial kivas nestle under cliffs

largest apartment house until 1887 when a bigger one was built in New York City.

Chaco Canyon National Monument contains other ruined dwellings of bygone Indians—more than a dozen in an eight-mile strip. Some 10,000 people once inhabited this little pre-Columbian empire, some of them settling here as early as 700 A.D. Pueblo Bonito, built in the 10th century, marked a high tide of culture. While the Bonitians thrived, they obviously kept altering their village, opening new rooms here, sealing off old ones there, patching up walls and closing off doors and windows in the outer wall as protection from raids by Indian nomads. Apartment rooms (left) still show the remnants of wooden ceilings. It was from the roof beams that archeologists worked out the pueblo's age, for tree rings supply one of their dating methods.

Droughts, raids, and overworked soil finally drove the Bonitians away in the 13th century. Each family probably thought it would return. But the once-loved home gradually succumbed to drifting sands.

Dr. Judd and his diggers rescued it. Park Service rangers now safeguard the mellow brown walls and tell Pueblo Bonito's story to visiting thousands.—E.P.

UMI

Pueblo Bonito

Photographs by
National Geographic Photographer
J. Baylor Roberts

PUT yourself back a thousand years, then look again at this broad, "D"-shaped ruin, studding the floor of a New Mexico valley. Abruptly, the curving outside wall soars five stories tall. Crumbling partitions suddenly become neatly roofed apartments, stepped upwards in pueblo fashion. Indian women grind corn in stone *metates* beside the doorways to their homes. Sun-kissed children play on the broad plazas while their fathers till outlying fields. A hum of activity rises from this walled village of perhaps 1,200 community-minded Indians.

But that was a thousand years ago. Today, Pueblo Bonito—"Beautiful Village"—is only a skeletonic ground plan of its former self. Even so, its broken walls and vacant, roofless rooms sprawling over some three acres of desert, rate it the largest open-site Indian ruin in the United States.

Pueblo Bonito lies in New Mexico's Chaco Canyon, some 60 miles north of U. S. Route 66, the "beaten track" through the Southwest. Early pioneers stumbled across it and marveled at its sand-smothered walls. But not until the 1920's, when several National Geographic Society expeditions uncovered it, was its grandeur revealed for all to see. Its vast, semicircular outer wall still rises 40 feet in places. Ruins of at least 800 rooms cluster against its shelter, facing twin plazas. Masonry, right, is scrupulously even. Dr. Neil M. Judd, director of The Society's expeditions, called the community the world's

parks and public gardens. Some Australian radio programs and newsreels open with his well-known laugh. Australian law protects him. Nonetheless, in recent years new settlers have found that the kookaburra makes excellent eating. They have shot and devoured great numbers of the friendly birds. Afraid that the cheerful bedlam will be permanently stilled, fans of the "laughing jackass" are asking stricter protection.

Left alone, kookaburras live to a ripe old age—perhaps because it's healthy to keep a good sense of humor.—J.A.

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HOWELL WALKER, NATIONAL GEOGRAPHIC STAFF

NORTHERN AUSTRALIA'S blue-winged kookaburra befriends its native captor. This species is smaller than its brownish southern cousin

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UMI

W. ROBERT MOORE, NATIONAL GEOGRAPHIC STAFF

Australia's Feathered Bedlam

IF nobody laughs at your favorite joke, try Australia's kookaburra bird. He'll laugh at anything.

A large-sized relative of the American kingfisher, the kookaburra lives in open forest and bush country of the "Land Down Under." His feathers are brownish, spattered with blue. His head is oversized, beak tremendous. But his voice is the hugest part of all, and sounds like peals of sidesplitting laughter. No wonder he's called the "laughing jackass."

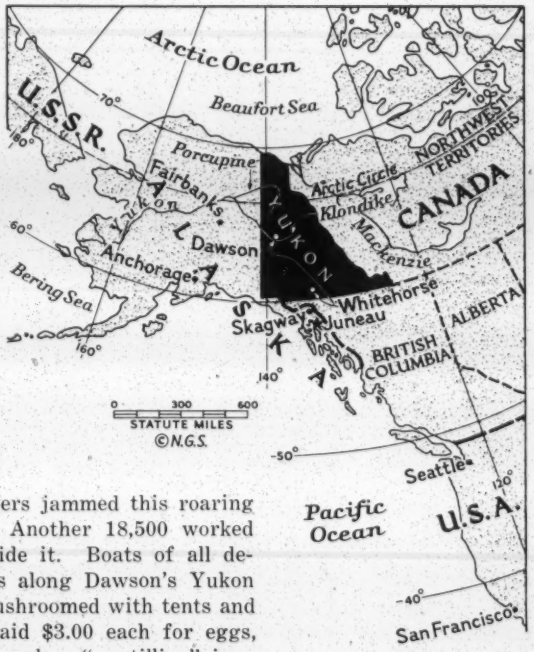
The kookaburra seems to think that dawn and sunset are especially funny. He greets the sun with riotous guffaws that explain another of his many names, "settler's clock." Probably few settlers or anyone else could sleep through such a hilarious reveille. Outbursts of raucous merriment are apt to continue day and night, starting with idiotic chuckles, swelling into convulsed shrieks, fading into devilish chortles. The act may last several minutes. To make the hullabaloo even greater, the kookaburra usually travels with a few friends. When one bird starts laughing, another joins in. Soon the whole area seems to rock with fiendish cackles. It's enough to make a drowsy, peace-loving koala bear stuff gum leaves into his ears.

Though a type of kingfisher, the kookaburra has no yen for a fisherman's life. He'll nab a crab if convenient, but he'd rather eat mice, lizards, frogs, large insects, and small snakes. Nor is he above snatching fledglings from a bird's nest, or a chick from a barnyard.

Australians are fond of their feathered alarm clock. He often entertains in

and endless physical hardship. Some could take the experience, some couldn't. None would forget it.

To start with, these "cheechakos" (the Chinook Indian word for tenderfeet) had to pack their gear over icy Chilkoot Pass or White Pass, torturous trails to the Yukon's headwaters. There, many built their own boats, often called "coffins," and paddled downstream through vicious rapids, 550 miles to the Klondike.



Dawson City awaited those who got through. Eight thousand fortune hunters jammed this roaring hub of the mining region. Another 18,500 worked the tight-packed claims outside it. Boats of all descriptions crunched gunwales along Dawson's Yukon water front. Mud streets mushroomed with tents and crazily-built shacks. Men paid $3.00 each for eggs, $1.00 a minute to stamp through a "cowtillion" in a dance hall. Veteran miners, sourdoughs, flourished moosehide sacks of gold, spent $10.00 for a haircut, then lost fortunes to slick gamblers. Some townsmen wiped molasses on their mustaches to entrap flying gold dust. Cheechakos, laden with flour, bacon, beans, and tools, stared at the raucous, seam-splitting streets and wondered what to do next.

Some went home. Some paid up life savings for claims that might prove worthless or, perhaps, had been salted with gold dust, fired into the earth with a shotgun. Some staked new claims on distant creeks and built cabins to weather seven months of sunless arctic winter when temperatures dropped to 50 degrees below zero, and lower. In the silent, paralyzing cold a man's cough could be heard three miles away. Men suffering from scurvy because of bad diet dreamed of fresh food instead of gold. Some went crazy. Others stubbornly burned prospect holes deeper through the frost and occasionally floundered back to Dawson to sit in miserable loneliness while entertainers sang "Home, Sweet Home." They had their own poet—Robert W. Service:

"Were you ever out in the Great Alone, when the moon was awful clear, And the icy mountains hemmed you in with a silence you most could hear; *With only the howl of a timber wolf, and you camped there in the cold, A half-dead thing in a stark, dead world, clean mad for the muck called gold . . ."*

Some prospectors actually got rich.

In 1898, as fresh thousands swarmed into the Klondike, Canada created the Yukon Territory, carving it away from the Northwest Territories (see map). Roughly the shape of Idaho, but more than twice the size, the new Territory centered about Dawson, bringing government to the miners.

But a year later, the gold rush had slowed to a trickle. Soon it stopped. Hard-bitten, bearded prospectors shouldered their picks and ambled off as heavy mining machinery rumbled in to the claims. Today, huge electric dredges prowl

UMI

CHARLES E. MOREAU

Yukon Recalls Klondike Rush

"GOLD!" Sixty years ago the word hung on thousands of frost-cracked lips. The dream of glittering nuggets sent dog teams mushing along bleak trails (above) in what is now Canada's Yukon Territory.

Prospectors stampeded to the junction of the Klondike and Yukon rivers. In this region, in 1896, a historic strike had set gold fever flaming through the continent. Claim stakes sprouted along a lacework of creeks—Eldorado, Bonanza, Eureka, Gold Bottom, Last Chance, others—where a man with a pan (below) might at least make wages; that is, wash an ounce of gold ($16.00) a day. Eager amateurs with gold dust shining in their eyes looked for fortunes in the cold wilderness.

CANADIAN NATIONAL FILM BOARD

Every crowded ship from Seattle brought a load of hopefuls—clerks, bank tellers, factory workers. Streetcar conductors in Tacoma, Washington, dispatched nine diggers. Chicago clairvoyants delegated a medium to dig in cahoots with guiding spirits. Accents of Texas, Louisiana, and Brooklyn mingled as milling passengers jumped ashore at Skagway or Dyea on Alaska's panhandle. There they faced the job of getting themselves and their equipment over glacier-sheathed coastal mountains to the Yukon River. Ahead lay torments of arctic climate

WEBSTER & STEVENS

Klondikers queue up on precipitous Chilkoot Pass in this 1898 photograph. Ropes helped them claw up icy steps to Canada's border where "Mounties" checked their gear

Yukon's creek beds, biting the gravel, fastidiously sorting out 25 cents worth of gold per ton. The old-timers scorned dirt paying less than ten cents a pan.

Mining is still Yukon's big business. Almost a quarter of a billion dollars worth of gold has streamed from the Territory since the 1896 strike. Experts say the machines should throb for another 30 years. But Dawson's population has dwindled to about 800. The Alaska Highway brought prosperity to the town of Whitehorse, farther south. It's now Yukon's biggest center and territorial capital with a $13,000,000 airport and some 4,000 inhabitants.

Brief summer decorates the Yukon Territory with about 500 varieties of wild flowers, shrubs, and ferns. Bog orchids, lady's tresses, and calypso bloom near Dawson. Moose wallow in marshes or pad through mossy forests. Muskrat, marten, beaver, and mink roam creeks where miners once labored to wash their mounds of pay dirt. In far northern barrenlands, caribou migrate in great herds. Trappers still make a living, as they did before the cheechakos came. Loggers slice into virgin forests. Other minerals may underlie awesome peaks.

Travelers along the Alaska Highway may even see an occasional prospector, panning a forgotten creek. He brings back lusty memories of the days when "a bunch of the boys were whooping it up." ✪